

# M1FK60

## Fast Recovery Diodes 600V, 1A

### Feature

- Small SMD
- High Voltage
- High Recovery Speed
- Available for automotive use
- Pb free terminal
- RoHS:Yes

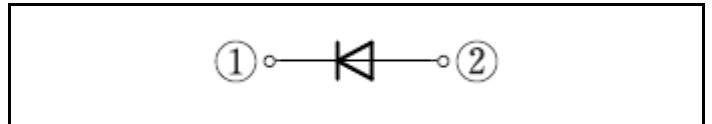
### OUTLINE

Package (House Name): M1F

Package (JEDEC Code): DO-219AA similar



### Equivalent circuit



### Absolute Maximum Ratings (unless otherwise specified : Tl=25°C)

Item	Symbol	Conditions	Ratings	Unit
Storage temperature	T <sub>stg</sub>		-55 to 150	°C
Junction temperature	T <sub>j</sub>		-55 to 150	°C
Repetitive peak reverse voltage	V <sub>RRM</sub>		600	V
Average forward current	I <sub>F(AV)</sub>	50Hz sine wave, Resistance load, Tl=116°C	1	A
Average forward current	I <sub>F(AV)</sub>	50Hz sine wave, Resistance load, On alumina substrate, Ta=25°C *	0.77	A
Average forward current	I <sub>F(AV)</sub>	50Hz sine wave, Resistance load, On glass-epoxy substrate, Ta=25°C *	0.51	A
Surge forward current	I <sub>FSM</sub>	50Hz sine wave, Non-repetitive 1 cycle, Peak value, T <sub>j</sub> =25°C	15	A
Surge forward current	I <sub>FSM1</sub>	tp=1ms, Sine wave, Non-repetitive, Peak value, T <sub>j</sub> =25°C	35	A

\* :See the original Specifications

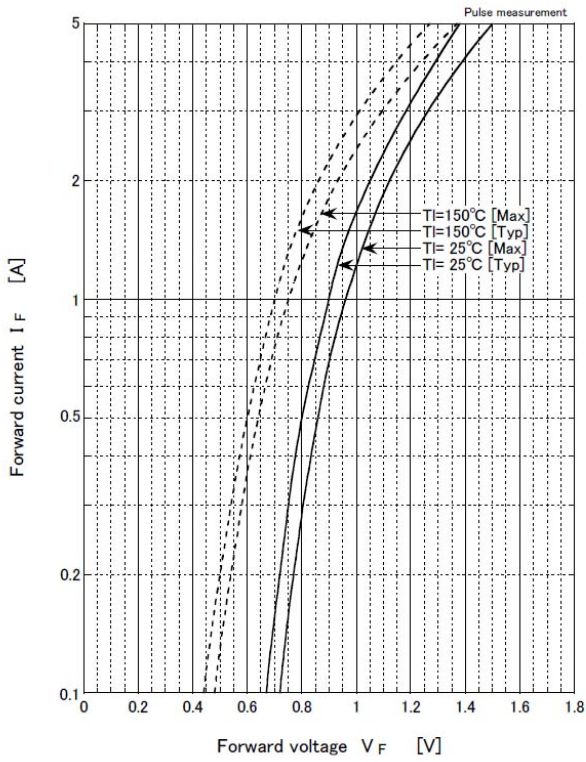
**Electrical Characteristics** (unless otherwise specified : Tl=25°C)

Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Forward voltage	$V_F$	$I_F=1A$ , Pulse measurement			1.5	V
Reverse current	$I_R$	$V_R=600V$ , Pulse measurement			10	$\mu A$
Reverse recovery time	$t_{rr}$	$I_F=0.5A$ , $I_R=1.0A$ , $0.25I_R$			75	ns
Total capacitance	$C_t$	$f=1MHz$ , $V_R=10V$		6		pF
Thermal resistance	$R_{th(j-l)}$	Junction to lead			20	$^{\circ}C/W$
Thermal resistance	$R_{th(j-a)}$	Junction to ambient, On alumina substrate ※			108	$^{\circ}C/W$
Thermal resistance	$R_{th(j-a)}$	Junction to ambient, On glass-epoxy substrate ※			186	$^{\circ}C/W$

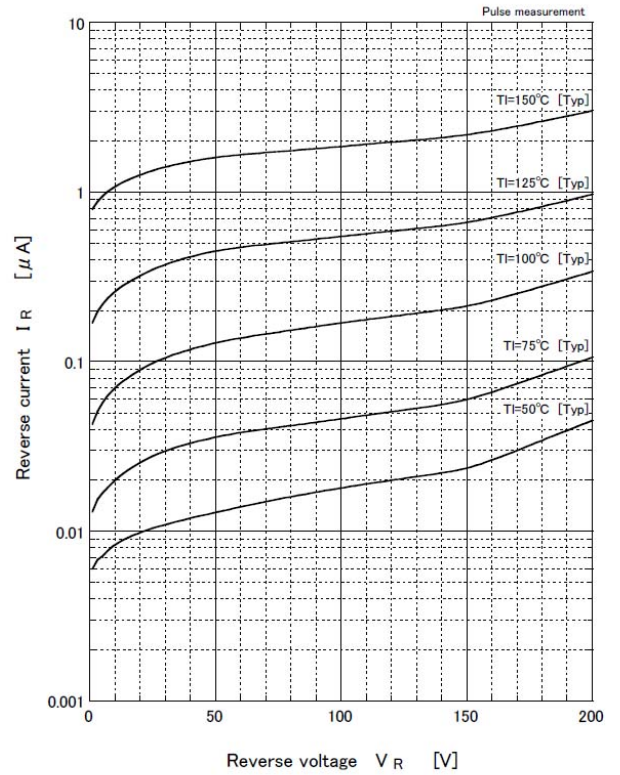
※ :See the original Specifications

# CHARACTERISTIC DIAGRAMS

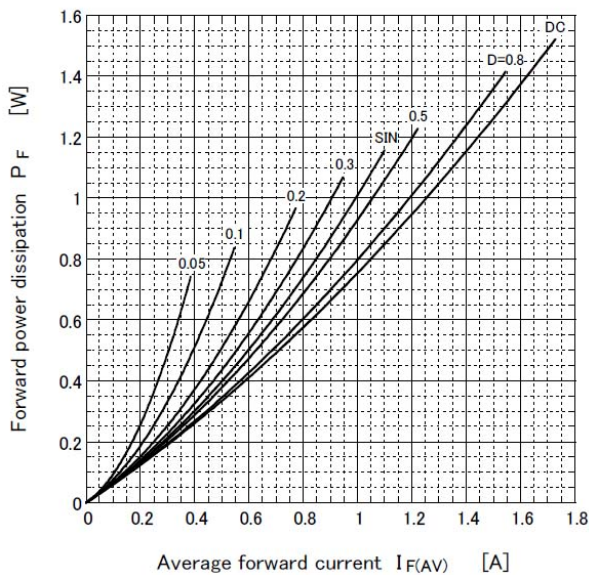
Forward voltage



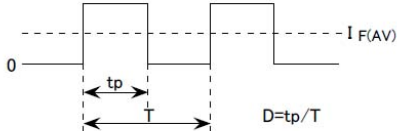
Reverse current



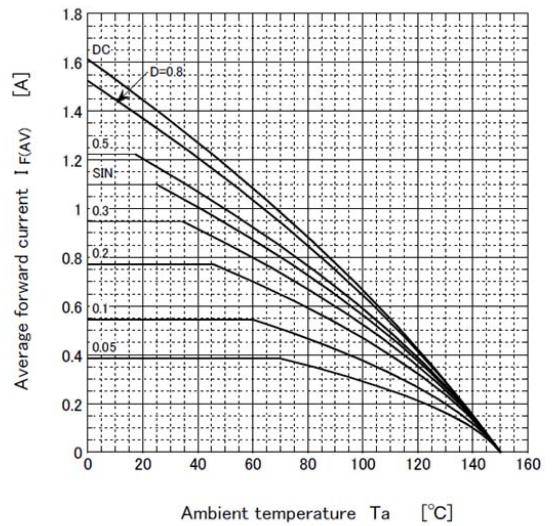
Forward power dissipation



●  $T_J = 150^\circ\text{C}$



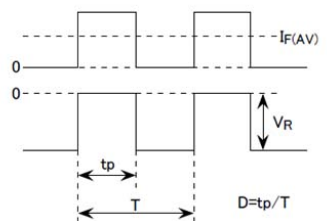
Derating curve



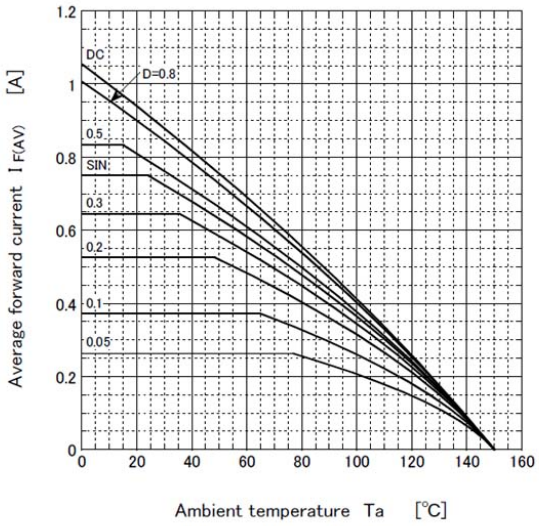
●  $V_R = 200\text{V}$   
R-load  
Free in air

● Substrate detail

Type	Alumina
Size	1 inch <sup>2</sup>
Thickness	0.64mm
Conductor thickness	20μm
Pattern area	43.4mm <sup>2</sup>



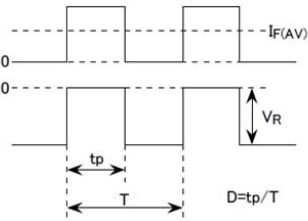
Derating curve



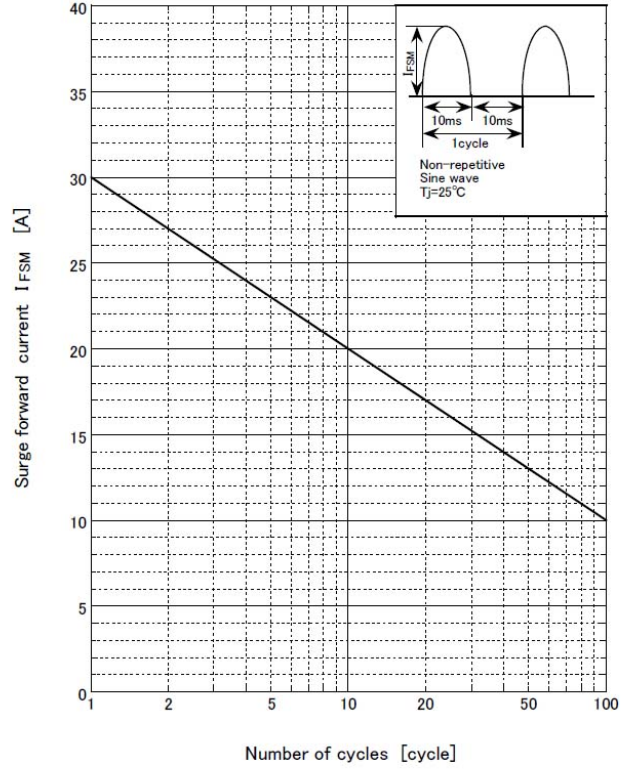
- $V_R = 200V$   
R-load  
Free in air

- Substrate detail

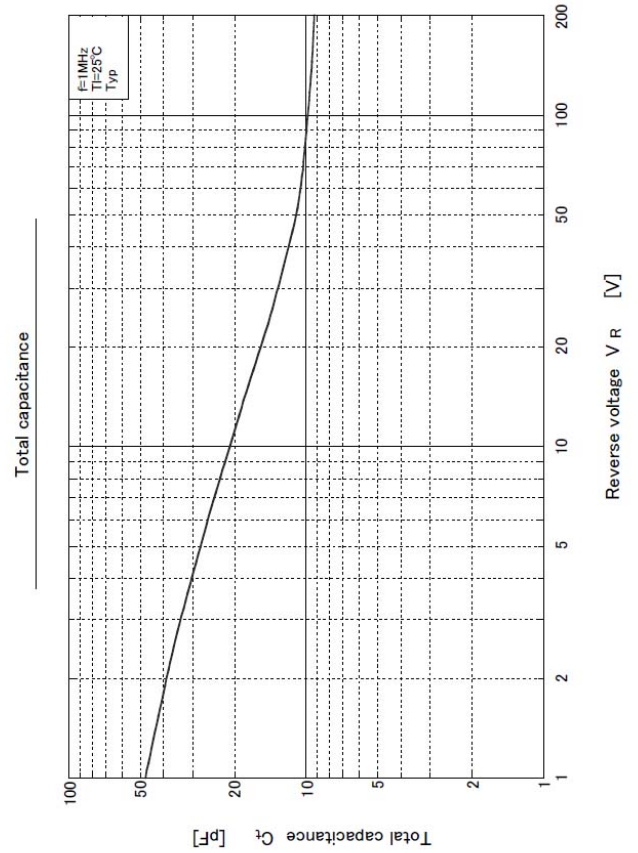
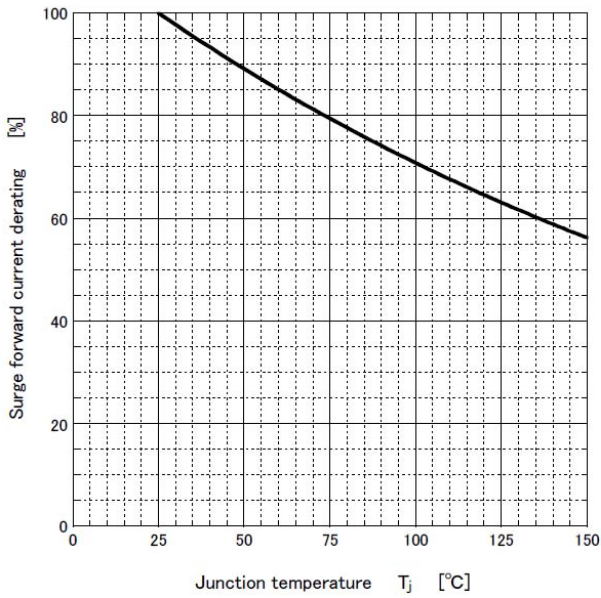
Type	Glass/epoxy
Size	1 inch <sup>2</sup>
Thickness	1.6mm
Conductor thickness	35μm
Pattern area	43.4mm <sup>2</sup>



Surge forward current capability

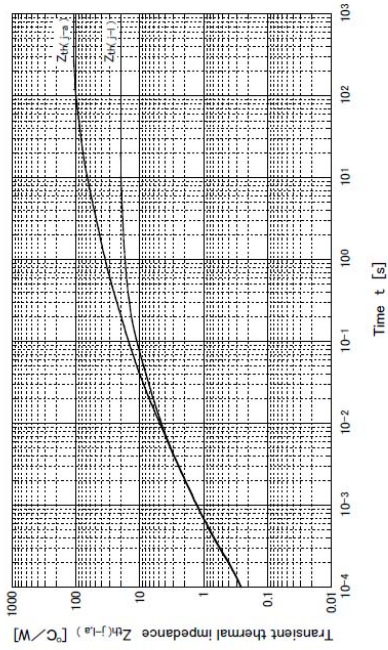


Surge forward current derating vs Junction temperature





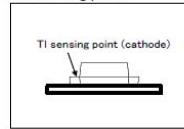
Transient thermal impedance



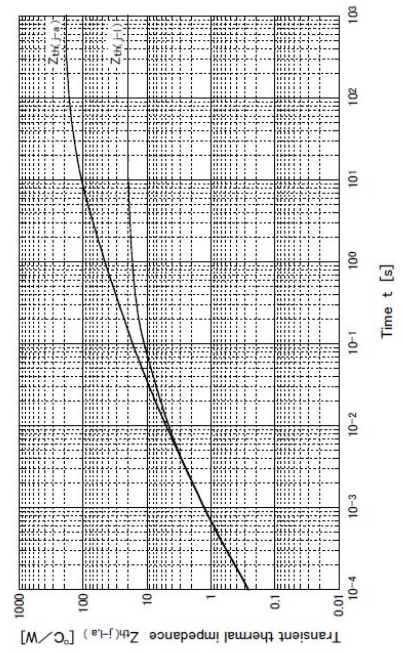
● Substrate detail

Type	Alumina
Size	1 inch <sup>2</sup>
Thickness	0.6mm
Conductor thickness	20 μm
Pattern area	43.4mm <sup>2</sup>

● TI sensing point



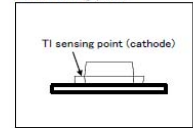
Transient thermal impedance



● Substrate detail

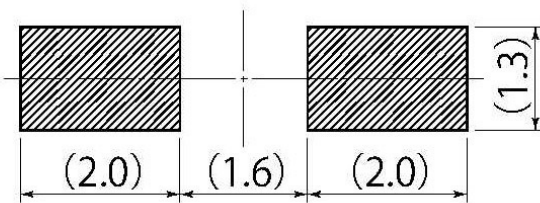
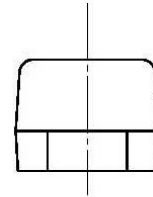
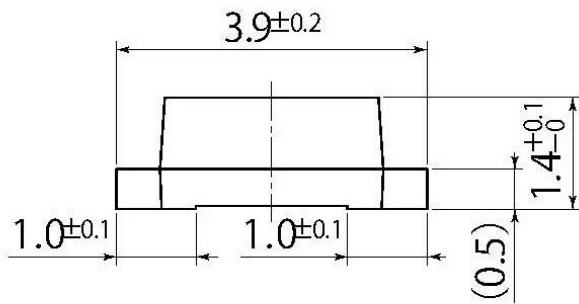
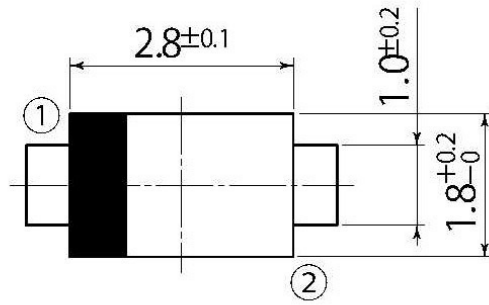
Type	Glass epoxy
Size	1 inch <sup>2</sup>
Thickness	1.6mm
Conductor thickness	35 μm
Pattern area	43.4mm <sup>2</sup>

● TI sensing point



B2

JEDEC Code	DO-219AA similar
JEITA Code	—
House Name	M1F



Referential Soldering Pad

- Optimize soldering pad to the board design and soldering condition.

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